



## University Subject Choice: A Survey of Final year Computer Science (CS) Students

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Many factors affect subject choices of final year students. Identifying these factors would give teachers, educators, and industry an idea as to where students place most of their trust in the career selection process. This preliminary research paper is conducted to identify student choices of choosing course of study in University of Computer Studies, Yangon. Results of this research will help teachers and students learn about how an effective choosing subject between students and subjects can support to identify the learning process. This survey examines how final year students choose their majors based on their expectations of educational outcomes, for example, future income. And the survey gives to identify reasons and concerns of students when deciding to further their studies.

### INTRODUCTION

University of Computer Studies, Yangon was first founded in 1971 as University Computer Centre (UCC). In 1998, UCC was re-established as Institute of Computer Science and Technology (ICST). On 1<sup>st</sup> July 1998, the Institute was renamed to University of Computer Studies, Yangon (UCSY).

University of Computer Studies, Yangon (UCSY) is one of the higher institutions operating under Ministry of Education. The aim of UCSY is to educate and conduct researches in various branches of Computer Science, Computer Technology and Information Technology. UCSY currently offers undergraduate and postgraduate degrees.

Final year students at the University of Computer Studies, Yangon (UCSY) are required to select subject for first term exam. After finished their exam they are required to complete Internship or Project to fulfill their graduation requirements. UCSY computer science and technology internship program is an important part of the Computer Science and Technology curriculum. The purpose of the program is to provide students an opportunity to integrate classroom studies with work-based learning that is related to the student's academic course work and career goals. Students can also obtain a better understanding of the professional environment and get an opportunity to self-evaluate her/his career goals before they are graduated.

Everyone has to make choices at different stages in their life. Some of the most crucial relate to their education, in particular what combination of subjects they decide to take for higher-level study. Career choice is considered as one of the major areas of concern for young people nearing the end of their schooling [7].

Several researchers have studied issues of diversity in students'

entry and persistence in aviation careers. Clark (2006) explored reasons why students chose to attend a four-year university to become commercial pilots. Her research examined the relationships between gender and school choice, and between ethnic background and school choice. Clark's research was limited to pilot training and did not consider other careers in aviation, such as aircraft maintenance technician. Her research also was limited to four-year schools [8].

This paper organized 5 sections relating the survey results. In section I, described the brief introduction of University of Computer Studies, Yangon, Myanmar. In section II, showed the related work for this research. In section III described the analysis of the survey results. How important for the applicable area of computer is shown in section IV. In the discussion and results survey section, described the challenges and future plan and conclusions sections also provided in this paper.

### RELATED WORK

UCSY's mission is to yield more professionals who can research and invent products (i.e. hardware and software) which contribute to nationwide benefits in technological aspects.

A review of studies of university choice factors indicate that there are common elements across nations in that mass-media, parental preference, influence of peers, location, cost and characteristics of the host countries are significant, with the top factors being learning environment, political environment, concern for students, cost of education, facilities, and location in descending order. It has been shown that students do not make this life-changing decision in isolation [1].

Career selection is one of many important choices students will make in determining future plans. This decision will impact them throughout their lives. The essence of who the student is will revolve around what the student wants to do with their life-long work. "What is it that influences children one way or another?" Over the school's front door at Rindge School of Technical Arts is the saying, "Work is one of our greatest blessings. Every student carries the unique history of their

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past and this determines how they view the world. That history created, in part by the student's environment, personality, and opportunity, will determine how students make career choices. It then follows that how the student perceives their environment, personality, and opportunity also will determine the career choices students make [2].

Statistical analysis of data can also be done fast and accurate by applying the computer as against manual analysis which may involve hours and days of calculation. Also certain problem that cannot be represented in mathematical form or those whose mathematical form cannot be solved by any known analytical method can be solved by simulation techniques. This would involve building a mathematical model to approximate the problem. The simulation of the solution can be applied on the computer using generated data and thereby determine whether the solution will be a good one or not [3].

Career planning done on individual basis is a plan as to how an individual would foster in his profession. As regards the organizational level, it talks about promotional aspects together with personal development quadrant. So briefly career planning is the process whereby the individual himself or his organization helps in pursuing his growth objectives in conformity with his expertise in the area, capabilities and aims. Choices that people make related to their career can be categorized to be influenced by two factors that are psychological and social. Social factors are part of an individual's social bonds, their parents, family, history and other characteristics of their environment. Psychological factors can be an individual's perception, cognitive and effective intentions, beliefs, ideas, personality and assessments related to forthcoming business environment [5].

Although recent research suggests that congruence between students and their academic environment is critical for successful student outcomes, little research has been done on student college major choice. Using Holland's theory of careers, we analyze college major choice using a multinomial logit model. We use the CIRP Freshman Survey and institutional data for three cohorts of first-year students at a selective liberal arts college to study the factors that affect college major choice, both at entry and at graduation [6].

## ANALYSIS THE SCOPE OF THE SURVEY

Before making career choices, students are often provided with a list of careers from which they are supposed to make choices. The scope of the research survey is focused on the final year students selected various courses in their B.C.Sc (Bachelor of Computer Science) program. They yet have to pass through the process of making their career choices by selecting the specialized area within information technology discipline. As shown in Table 1, Faculty of Computer Science includes three subjects for final year students, Faculty of Information Science includes two subjects for final year students and Department of Information Technology Supporting and Maintenance includes one subject for final year students in Computer University. There will be no direct benefit to you for taking part in this study. The researcher may learn more about how individuals' decision making processes are affected by their expectations of future outcomes.

As shown in Table 2, out of 397 students, 308 (77.58%) are choosing artificial intelligence subject and 80 (20.15%) are choosing analysis algorithm subject and 9 (2.27%) are choosing computer graphic subject from Faculty of Computer Science.

As shown in Table 3, out of 397 students, 294 (74.05%) are choosing data mining subject and 14 (3.53%) are choosing web engineering subject from Faculty of Information Science. And

89(22.42%) are choosing business application technique subject from Department of Information Technology Supporting and Maintenance.

## APPLICABLE AREA OF COMPUTER

This research paper is conducted to identify student choices of choosing course of study in Computer University. Many factors and conditions need to be considered because these factors would probably affect the final decision. Identifying those sources and information that might be considered by students is the main objective of the study. Fisusi (2000) said it will be an arduous if not impossible task to list all the area of application of computers. The application areas are however, categorized into two namely:[3]

- (1) Business data processing
- (2) Scientific data processing

Business data processing is used to distinguish those operations relating to management control of business from other application areas such as those relating to science e.g. pay roll, air reservation, computation of results, office automation etc. business data processing is characterized by the need of establish, retain and process files for producing useful information that would aid further decision in the company. It involves the following:

- I. Large volume of input data
- II. Limited automatic operation

Now take a look at some of the common application areas in which computers are being applied.

### Computer Science and Engineering

The greatest asset of the computer is its ability to compute accurately and at high speed. While human can perform operation in minutes, the computer can perform more complex calculation in the order of 10.7 seconds. It also has the ability to take decisions at very fast speed by comparing data base containing thousands of names in a speed as that of light to determine whether a name is in the data base. Scientists and researchers take advantages of these characteristics by applying the computer in the theory or hypothesis development. He can store his data in the computer and then harness the accuracy and high speed of computation offered by the computer to test all possible hypotheses on the data in order to configure a theory relating to the data [3].

### Medical and Health Services

Computers are used for keeping medical records in hospitals. Community health workers also require the use of computers in records and monitoring epidemic D diseases and community health programs.

### Industry and Technology

The community has a wide range of industrial applications in production process; the computer has become very useful. Computers are also used in industry for the control of machinery as robots (computer aided manufacturing), launching of spaceship and satellites into orbits cannot be achieved with the desired accuracy without the aid of computers.

### Education and Literature

At all levels of education primary, secondary and tertiary computers are now used as instructional aids. Computer can be used in education as a teaching tool through the use of computer assisted learning (CAL).

**Table 1** Major Subjects from Three Departments (Software Technology, Information Science and Application)

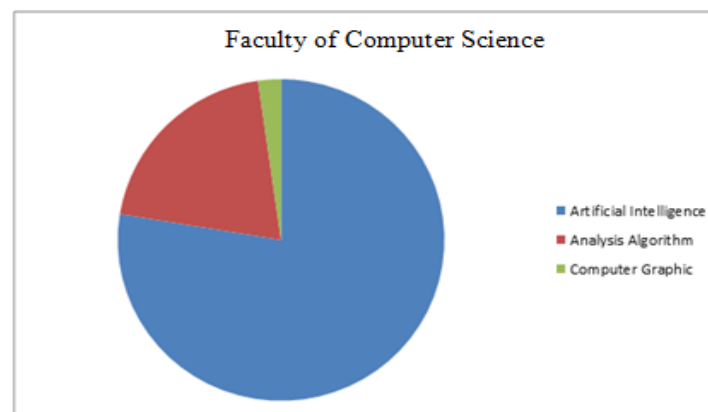
Faculty of Computer Science	Faculty of Information Science	Department of Information Technology Supporting and Maintenance
(1) Artificial Intelligence	(1) Data Mining	(1) Business Application
(2) Analysis Algorithm	(2) Web Engineering	
(3) Computer Graphic		

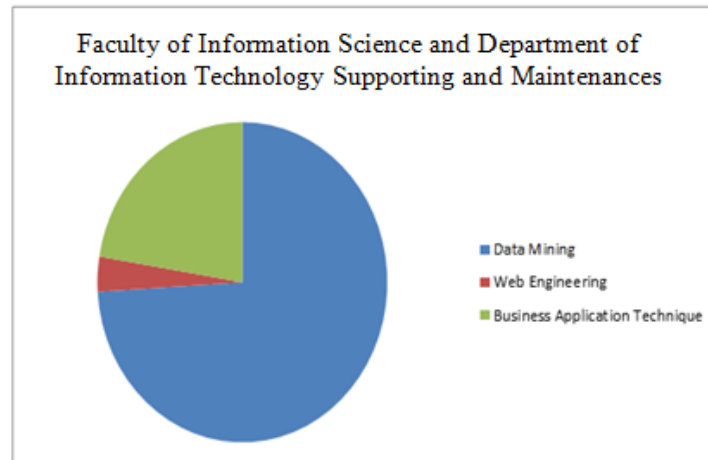
**Table 2** Demographic of Students Choosing Subjects of Faculty of Computer Science

Subjects	Students	Percentage (%)
Artificial Intelligence	308	77.58
Analysis Algorithm	80	20.15
Computer Graphic	9	2.27
Total	397	100

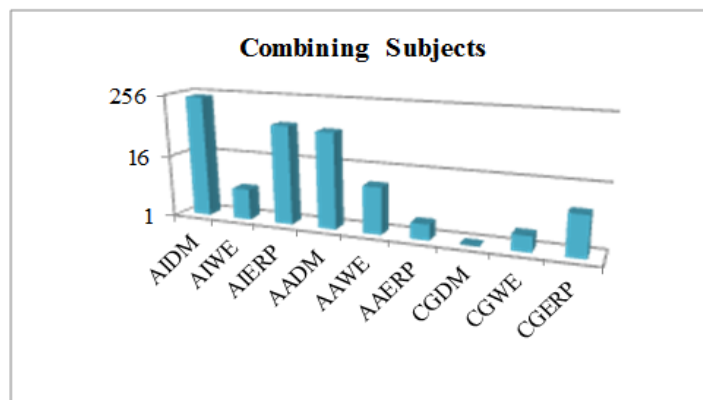
**Table 3** Demographic of Students Choosing Subjects of Information Science and Department of Information Technology Supporting and Maintenance

Subjects	Students	Percentage (%)
Data Mining	294	74.05
Web Engineering	14	3.53
Business Application Technique	89	22.42
Total	397	100

**Figure 1** Selected Subjects of Faculty of Computer Science



**Figure 2** Selected Subjects of Faculty of Information Science and Department of Information Technology Supporting and Maintenances



**Figure 3** Combining Selected Subjects of Faculties and Department

### Computer Assisted Learning (CAL)

Computer is hereby being used to assist in learning and instruction. This involves the development of software that can be used as a learning tool by the students. The computer would present a lecture for the students to learn and would also test their mastery of the subject matter. This it does by asking questions, the response of which determines the progress or other wise of the students the computer program would proceed to the next lecture depending on the accuracy of the answers supplied by the students.

Computer Assisted Learning has the following advantages are:

- Students can learn at their own pace. It eliminates the slow learners delaying the brighter students.
- Learning takes place at the students own convenient.
- It is devoid of distractions such as noise etc

Some of the disadvantages are:

- Students-teacher interaction is not guaranteed.
- Lack of learning aid
- Computer has no human feeling; hence lectures are not humorous and lively [4]

### DISCUSSION AND LIMITATIONS OF THE SURVEY

Based on the survey results, 77.58% students selected Artificial Intelligence from Faculty of Computer Science and 74.05% students selected Data Mining from Faculty of Information Science. Data Mining and Artificial Intelligence Subjects are most selected subjects among other subjects for the final year students in Computer University. This survey has several limitations. Additional limitation to the study is the lack of conceptual framework. There is no theory or concept to form the foundation of the study. No variables were indicated in the study. Hence, this study could only be considered as a poll to identify the “factors” influencing student choices of choosing subject of study in Computer University. Hence, the interpretations of the study are rather limited. The selected subjects from two faculties and one department showed in the following figure 1 and 2. Above all, due to the various limitations to the current study, educational teachers and administrators should conduct follow-up studies to provide more coverage relative to the findings of this study. The combining selected subjects of two faculties and one department showed in figure 3.

### CONCLUSION

According to the survey results, 77.58% students selected Artificial Intelligence from Faculty of Computer Science and 74.05% students selected Data Mining from Faculty of Information Science. The result of the analysis showed that: there is a significant between attitudes and selection, there is no relationship between the attitudes of males and

females, there is a relationship between teacher qualification and attitudes, a relationship exit between interest and selection and finally that there is a relationship between the instructional materials available and the attitudes of teachers. And the result also showed how final year students choose their majors based on their expectations of educational outcomes, for example, future income. For the further research of survey: this survey looked at limited factors, whereas there are many factors that influence subject choice decisions. It is therefore recommended that a similar survey be conducted in which many factors affecting subject choice decisions can be explored.

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